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10/639,612	08/11/2003	Gregg D. Wilensky	07844-590001 / P543	5396
21876	7590	12/15/2008	EXAMINER	
FISH & RICHARDSON P.C. P.O. Box 1022 MINNEAPOLIS, MN 55440-1022			SHIKHMAN, MAX	
			ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATDOCTC@fr.com

Office Action Summary	Application No.	Applicant(s)	
	10/639,612	WILENSKY, GREGG D.	
	Examiner	Art Unit	
	MAX SHIKHMAN	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 30 July 2008.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-50 is/are pending in the application.

4a) Of the above claim(s) 22-25 and 47-50 is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-21, 26-46 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____ .
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)	5) <input type="checkbox"/> Notice of Informal Patent Application
Paper No(s)/Mail Date _____ .	6) <input type="checkbox"/> Other: _____ .

Response to Amendment

1. Applicants' response to the last Office Action, filed 07/30/2008 has been entered and made of record.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 26 rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Please amend, A ~~computer program product, tangibly embodied in~~ computer readable medium encoded with a computer program

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-21, 26-46, 51, 52 rejected under 35 U.S.C. 103(a) as being unpatentable over Held PGPUB-DOCUMENT-NUMBER: 20020126893, "Automatic color defect correction" in view of

Nesterov 20030007687, "Correction of "red-eye" effects in images" and in view of

(i) Regarding Claims 1,26:

1. A computer-implemented method for computing the color of pixels in an image, each pixel having one or more color values, the method comprising:

identifying a target region of pixels in the image that represent an object, (Held. Fig1: Face) the object having a shape ([0024] "shape") and a predefined set of features; and (Figs 13, 14)

computing a color (Fig1: correct red eyes) of one **or** more pixels in the target region (red eye) from one **or** more probability functions ([0102] "mask...probability whether a certain pixel belongs to a red-defect region...") and

each probability function (mask) defining a probability value at each of the one **or** more pixels in the target region, (red eye) the probability value representing the probability that the pixel corresponds to one **or** more features (red-defect region) of the object, (red eye) ([0102] "mask...probability whether a certain pixel belongs to a red-defect region...")

Held discloses everything as described above except, A computer-implemented, one **or** more spatial profile functions, each spatial profile function being defined based on one **or** more spatial properties of the object **or** one or more of its features.

Nesterov discloses, A computer-implemented ([0029] computer), one **or** more spatial profile functions, ([0116] a neutral color, such as a neutral gray...gray value may change radially. [0120] $Y=Y_{\text{center}}/[D+E(1-D)]$) each spatial profile function being defined based on one **or** more spatial properties ([0120] D) of the object **or** one or more of its features. (glint)

As Nesterov discloses, it is desirable to change color based on distance from the eye center, [0116] "*A benefit of the higher central density is that such a distribution corresponds more closely to the higher optical density pupil and lower density iris*". Therefore, it would have been obvious to one of ordinary skill in the art at the time of the

invention, to use Nesterov's method in Held's eq 1.3, to make distance dependent color changes for red eye correction.

All the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

() Regarding Claim 2,27:

2. The method of claim 1 wherein the spatial properties include size.

([0019] [0068] "size")

() Regarding Claim 3,28:

3. The method of claim 1, wherein the spatial properties include shape.

([0024] "shape")

() Regarding Claims 4,29:

4. The method of claim 1, wherein the spatial profile function is a sigmoid function.

Held does not disclose expressly a sigmoid function.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a sigmoid function. Applicant has not disclosed that using a sigmoid function provides an advantage, is used for a particular purpose or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with either the accumulator ([0083], Fig 16. Fig 15.) taught by Held or the claimed sigmoid function because both functions perform the same function of spatial profile to locate eyes.

Therefore, it would have been obvious to one of ordinary skill in this art to use a sigmoid function in Held to obtain the invention as specified in claim 4.

() Regarding Claim 5,30:

5. The method of claim 1, wherein the spatial profile function is a Gaussian function.

([0087] “accumulator, a Gaussian distribution”)

() Regarding Claim 6,31:

6. The method of claim 1, wherein the spatial profile function is defined by a mask.

([0102] “mask...Pixels along the borderlines receive a gradually decreasing probability”)

() Regarding Claim 7,32:

7. The method of claim 1, wherein identifying a target region of pixels includes:
receiving data that identifies the target region of pixels.

(Fig 15: Location of Eye. Fig 4: Detected Eye)

() Regarding Claim 8,33:

8. The method of claim 1, wherein: at least one of the probability values represents
the probability that the pixel corresponds to either a first feature **or** a second feature.

([0102] “probability whether a certain pixel belongs to a red-defect region or not.”)

() Regarding Claim 9,34:

9. The method of claim 1, wherein: the color computation changes as the probability
value increases.

([0102] “Pixels along the borderlines receive a gradually decreasing probability”)

() Regarding Claim 10,35:

10. The method of claim 1, wherein:

the color computation changes as the probability value decreases. (As probability that this is not a normal eye increases, the adjustment increases.)

() Regarding Claim 11,36:

11. The method of claim 1 wherein computing the color includes:
adjusting (Fig1: correct red eyes) a first pixel ([0091] “correction mask specifically pinpoints those pixels that have to be corrected”) by an amount determined based on a first probability value ([0102] “Pixels along the borderlines receive a gradually decreasing probability”) that corresponds to a first feature; and (red eye)
adjusting (Fig1: correct red eyes) a second pixel ([0091] “correction mask specifically pinpoints those pixels that have to be corrected”) by an amount determined based on a second probability value ([0102] “Pixels along the borderlines receive a gradually decreasing probability”) that corresponds to a second feature. (red eye)

() Regarding Claim 12,37:

12. The method of claim 1, wherein:
the image is a photographic image including an eye exhibiting a redeye effect; and(Fig1: correct red eyes)
the identified region of pixels corresponds to a portion of the eye that exhibits the redeye effect. (Fig1: correct red eyes)

() Regarding Claim 13,38:

13. The method of claim 1, wherein:

the feature is one of skin, sclera, or redeye. (Fig1: correct red eyes)

() Regarding Claim 14,39:

14. The method of claim 1, wherein computing the color includes:
computing the color to match a representative color (R_{new}) for the region; (Eq. 1.3)
and using the probability values (mask. [0103]) to change the computation. ([0102]
“Pixels along the borderlines receive a gradually decreasing probability”)

() Regarding Claim 15,40:

15. The method of claim 14, wherein the representative color (R_{new}) represents an iris
color for the eye. ([0019] [0104] “iris”)

() Regarding Claim 16,41:

16. The method of claim 1, wherein computing the color includes:
desaturating (Eq 1.3) the color of pixels in a subregion (mask) of the region; and (eye)
using the probability values (mask) to modulate the amount of desaturation. ([0102]
“Pixels along the borderlines receive a gradually decreasing probability”. [0103] “...mask
represents actual probability values for eye defects...”)

() Regarding Claim 17,42:

17. The method of claim 16, wherein:
the subregion (mask) is the center of the region. (eye)
([0102] “Pixels along the borderlines receive a gradually decreasing probability”.
[0103] “...mask represents actual probability values for eye defects...”)

() Regarding Claim 18,43:

18. The method of claim 16, wherein:

the subregion is an outer rim of the region. ([0102] “Pixels along the borderlines receive a gradually decreasing probability”.)

() Regarding Claim 19,44:

19. The method of claim 1, wherein computing the color includes:

defining a region of pixels in the image that corresponds to the pupil of the eye, ([0091] “centers of the eyes”)

each pixel having a luminance value; and ([0020] “The value component of the HSV colour space is a measure of its brightness”)

reducing the luminance value (Eq 1.3) of one or more of the pixels in the region.

() Regarding Claim 20,45:

20. The method of claim 1, wherein computing the color includes:

computing the color of a pixel based on the color values of pixels surrounding the pixel.

([0026] “correction mask data can be directed to binary dilation and also be influenced by a Gaussian smoothing or the like.”)

() Regarding Claim 21,46:

21. The method of claim 20, wherein computing the color of a pixel based on the color values of pixels surrounding the pixel includes:

defining a window of pixels surrounding the pixel; (mask)

determining a representative color for the window of pixels; ([0029] “minimum of the green colour channel and the blue colour channel”)

and computing the color value of the pixel (Eq 1.3) to match the representative color for the window. ([0029] “minimum of the green colour channel and the blue colour channel”)

(i) Regarding Claims 51,52:

(Note: original color=Nesterov E. original color=Ycenter)

51. (new) The method of claim 1 wherein computing the color includes computing the color based on an original color (Held. R) of the one or more pixels and a new color value (Rnew.) of the one or more pixels. (Held Eq1.3)

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JINGGE WU whose telephone number is (571)272-7429. The examiner can normally be reached on Mon-Fri 8:30 AM-6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu can be reached on (571) 272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jingge Wu/
Supervisory Patent Examiner, Art Unit 2624

/Max Shikhman/
Examiner, Art Unit 2624
12.7.2008